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APPLICANT : JAPAN STEEL WORKS LTD:THE;

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TITLE : PRODUCTION OF POLYLACTIC ACID.

ABSTRACT : PURPOSE: To produce a polylactic acid of high molecular weight useful as biodegradable plastic continuously in a short time by the polycondensation of a lactic-acid prepolymer in a screw-type extruder.

CONSTITUTION: A lactic-acid prepolymer having a weight-average molecular weight of 1000-5000 is used as raw material and subjected to polycondensation in a screw-type extruder while water as by-product is removed by degassing. During the reaction, lactide and low-molecular lactic acid compounds, which form azeotropic mixtures with water as the by-product, are recycled into the extruder through a recycling apparatus under the reduced pressure of 0.1-100mmHg at 90-130°C and a polylactic acid having a weight-average molecular weight of 30,000-100,000 is produced. Further, the lactic-acid prepolymer is produced by the polycondensation of lactic acid as a raw material in a batch-type reaction vessel while water as the by-product is removed by degassing, and lactic and low-molecular lactic acid compounds which form azeotropic mixtures with water as the by-product are recycled to the reaction vessel through a recycling apparatus.

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